
ISDN QSIG Call Completion

The ISDN QSIG Call Completion feature expands Ring Again functionalities on QSIG interfaces. This feature provides Call Completion to Busy Subscriber (CCBS) and Call Completion on No Response (CCNR) supplementary services.

The Call Completion to Busy Subscriber (CCBS) supplementary service allows the calling party to apply a Ring Again request when encountering a busy Directory Number (DN). The Meridian 1 alerts the calling party when occupied DN is available to receive a call. The calling party has the option of completing this call without making a new call attempt.

Call Completion on No Response (CCNR) supplementary service allows the calling party to apply a Ring Again request to an unanswered DN. With this service, the Meridian 1 alerts the calling party when the dialed DN becomes idle after a period of activity. The calling party has the option of completing the call without making a new call attempt.

Operating parameters

ISDN QSIG Call Completion supports Uniform Dialing, Customer Dialing and Group Dialing plans.

Since the Ring Again feature is configured on set level basis, either by Class of Service or Ring Again key, a set cannot be programmed with CCBS on Meridian Customer Defined Network (MCDN) Network Ring Again allowed. Ring Again is allowed or denied locally or network wide in the same manner.

This feature uses QSIG Generic Transport (GF) platforms. With the development of the QSIG Generic Transport feature, the Call Completion on No Response (CCNR) and Call Completion to Busy Subscriber service on QSIG cannot be involved in any gateway.

Call Completion to Busy Subscriber and Call Completion on No Response are not supported on ISDN BRI sets.

A PINX (Private Integrated Services Network Exchange) DN must be configured in the Customer Data Block (LD 15). The PINX DN is used for routing free notification on the MCDN network does not provide a calling number for the service. The DN configured should be consistent with the type of number plan used. PINX DN is also used for incoming Direct Inward Dialing (DID) calls in the same manner as Listed Directory Number 0 (LDN0) is used for a basic call.

Existing limitations, applicable to standalone or network wide Ring Again operation, apply to CCNR and CCBS on QSIG.

Feature interactions

Access Restrictions

Call Restriction

Trunk Group Access Restrictions

ISDN QSIG Call Completion does not override Access, Call Restriction or Trunk Group Access restrictions. When Call Completion is activated, the second call has the same restrictions as the initial call that received either no answer or a busy indication.

Attendant Consoles

Call Completion requests cannot be directed to or from an Attendant Console.

Automatic Call Distribution

Call Completion requests cannot be directed to or from Automatic Call Distribution (ACD) Directory Numbers (DNs).

An ACD set that uses a normal DN key (not the ACD key) can activate the Ring Again key when encountering a busy or no answer situation.

Call Detail Recording

A Call Detail Recording (CDR) is not produced for Call Completion signaling. The second call receives a CDR as a normal call.

Call Forward All Types

When the Call Forward feature is activated on a local basis and an incoming Call Completion request is received, the Call Completion request is registered against the forwarded DN.

Call Transfer

Call Completion notification is only presented to the Call Completion originating set. This notification cannot be transferred to another station. Once the second call is completed, the call can be transferred.

If a user encounters a busy or no answer situation during a transfer operation, Call Completion can be activated.

Call Waiting

On an Analog (500/2500 type) set, Call Completion notification waits until the set has finished an active call. If Call Waiting is configured on a set, notification is presented after the Call Waiting call. If an additional call is queued while Ring Again free notification is waiting on a set, the waiting call takes precedence over the Call Completion notification. An established Call Completion call is also queued if a set has Call Waiting feature equipped and is occupied on another call.

Conference

A Call Completion request cannot be made on a conference call attempt.

Direct Inward System Access

Call Completion on Busy Subscriber (CCBS) and Call Completion No Response (CCNR) are not supported on Direct Inward System Access (DISA) calls when the call destination is busy.

Do Not Disturb

An incoming notification overrides a set with Do Not Disturb (DND) activated. Call Completion requests can be applied to sets with the DND feature activated. However, this request does not advance until the DND feature is deactivated.

Flexible Feature Codes

Analog (500/2500 type) set can use Flexible Feature Codes (FFCs) to activate Call Completion to Busy Subscriber requests.

Group Hunt

Call Completion to Busy Subscriber cannot be applied to Pilot DN when no idle set is located during a Group Hunt call.

Hot Line

Call Completion cannot be used in conjunction with the Hot Line feature.

Maintenance Busy

Call Completion on Busy Subscriber is not accepted against a set in Maintenance Busy state.

Make Set Busy

Sets that have Make Set Busy (MSB) activated can request Call Completion to another DN, as the free notification overrides the MSB feature. Incoming Call Completion to Busy Subscriber (CCBS) requests do not override the MSB feature. A set is considered busy while MSB is active. A CCBS request is registered against a busy set, but only advances when the MSB feature is deactivated and the set remains free.

Permanent Hold

Analog (500/2500 type) sets with Permanent Hold cannot use the Ring Again functionalities.

Ring Again

Ring Again No Answer

Analog (500/2500 type) sets can have only one Call Completion to Busy Subscriber request at a given time. Meridian 1 proprietary sets can make Ring Again requests based on the number of Ring Again keys programmed on a set.

Feature packaging

ISDN QSIG Call Completion (QSIG-SS) is package 316. The package dependencies for QSIG-SS are:

- Optional Features (OPTF) package 1; and
- ISDN QSIG GF Transport (QSIGGF) package 305.

Depending on the application, the following packages are also required.

For the QSIG ISDN PRI interface:

- Digit Display (DDSP) package 19;
- Coordinated Dialing Plan (CDP) package 59;
- Integrated Services Digital Network (ISDN) package 145;
- 1.5 Mbps Primary Rate Access (PRA) package 146;
- Flexible Numbering Plan (FNP) package 160;
- Multipurpose Serial Data Link (MSDL) package 222; and
- QSIG Interface (QSIG) package 263.

Feature implementation

LD 17– Configure Remote Capabilities to Call Completion for the QSIG interface.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	ADAN	Configuration Record.
- ADAN	CHG DCH x	Change D-channel.
...		
- IFC	ISGF	Interface type for route where ISGF = Interface ID for ISO QSIG with GF capability
...		
- RCAP	CCBS	Add Call Completion to Busy Subscriber as remote capability.
- RCAP	CCNR	Add Call Completion No Response. This prompt is only applicable to QSIG interfaces.

LD 10 – Add or Change Ring Again on Analog (500/2500 type) telephones.

Prompt	Response	Description
REQ:	CHG, NEW	Change, or Add.
TYPE:	500	Telephone type.
TN	l s c u c u	Terminal Number. For Option 11C.
...		
CLS	XRA	Ring Again allowed. XRD = Ring Again denied (default).

LD 11 – Add or Change Ring Again on Meridian 1 proprietary telephones.

Prompt	Response	Description
REQ:	CHG, NEW	Change, or Add.
TYPE:	aaaa	Telephone type where aaaa = SL1, 2006, 2008, 2009, 2016, 1018, 2112, 2216 2317, 2616 or 3000.
TN	l s c u c u	Terminal Number. For Option 11C.
...		
KEY	xx RGA	Assign Ring Again key where xx = key number. On M2317 and M3000 telephones xx = 27.

LD 57 – Define Ring Again Flexible Feature Codes (FFCs) and FFC Confirmation Tone.

Prompt	Response	Description
REQ	CHG	Change.
TYPE	FFC	Flexible Feature Code.
CUST	xx	Customer number.
FFCT	YES	Confirmation tone provided after FFC is activated. NO = Confirmation tone not provided.
CODE	RGAA	Ring Again activate.
RGAA	xx	Ring Again code.
CODE	RGAD	Ring Again deactivate.
RGAD	xx	Ring Again deactivation code.
CODE	RGAV	Ring Again verification.
RGAV	xx	Ring Again verification code.

LD 15 – Configure a Private Integrated Services Network Exchange (PINX) DN.

Prompt	Response	Description
REQ:	CHG	Change.
TYPE:	NET	Networking.
CUST	xx	Customer number.
- PINX_DN	xx...x	Node DN to a maximum of seven digits with DN extension.

Feature Operation

Call Completion on Busy Subscriber

Meridian 1 Proprietary Sets

- 1 Set A calls Set B on an outgoing QSIG route and receives a busy indication.
- 2 Before releasing this call, Set A presses the Ring Again key (RGA) to activate Ring Again functionality. The DN lamp flashes.
- 3 When the far end receives a Call Completion on Busy Subscriber (CCBS) request, Set A's RGA lamp key is steadily lit, and the DN lamp darkens.
- 4 Set A awaits notification that Set B is free. Set A can make or receive calls while waiting for notification.
- 5 When Set B goes on-hook, Set A is notified in the form of a one second burst of ringing and the RGA key lamp fast flashes.
- 6 The recall is accepted by selecting the DN key and pressing the RGA key. Set A has thirty seconds to accept the recall before it is cancelled.
- 7 If Set A accepts the recall and Set B is free, the call is rung. However, if Set B has either received or originated another call, Set A receives a busy indication. Set A has the option of requesting CCBS again.

Note: If Set A presses the RGA key before receiving notification then the request is cancelled.

Analog (500/2500 type) sets without RGA key

- 1 Set A calls Set B on an outgoing QSIGroute and gets a busy indication.
- 2 Set A performs a switch-hook flash and a special dial tone is heard.
- 3 Set A dials RGA Activate Flexible Feature Code (FFC) or SPRE +1 to activate CCBS feature. This request cancels and replaces previous RGA Activate requests.
- 4 If an FFC is dialed, an FFC confirmation tone if programmed indicates that the CCBS request is registered.
- 5 Set A goes on-hook and is free to make or receive other calls.
- 6 When Set B goes on-hook, Set A receives a burst of tone and has thirty seconds to accept the recall before it is cancelled.
- 7 If Set B has originated or received another call, Set A receives a busy indication and has the option of requesting the CCBS again.

Note: If Set A presses the RGA key before receiving notification then the request is cancelled.

Call Completion No Response**Meridian 1 Proprietary Sets**

- 1 Set A calls Set B on an outgoing QSIG route. The call rings but is not answered. Set A receives a ringback tone.
- 2 Set A presses RGA key to activate Ring Again on No Answer prior to releasing the call. The DN key lamp darkens.
- 3 Set A goes on-hook and is free to make or receive calls.
- 4 When Set B makes a call and goes on-hook. Set A is notified by a one second burst of tone and the RGA lamp fast flashes.
- 5 Set A can accept the call by selecting a DN key and pressing the RGA key. Set A has thirty seconds to accept this call.
- 6 If Set A accepts the call and Set B is free, the call goes through. However, if Set B receives or originates another call, Set A receives a busy indication. Set A has the option of requesting CCBS.

Note: If Set A presses the RGA key before receiving notification then the request is cancelled.